To our customers,

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April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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# M37630T-RFS

Converter Board for M37630 Emulator MCU

# User's Manual

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- Do not attempt to modify this equipment. If modified, your authority to operate this equipment might be voided by FCC.
  Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user's manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
  Warning: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

For inquiries about the contents of this document or product, fill in the text file the installer of the emulator debugger generates in the following directory and email to your local distributor.

\SUPPORT\Product-name\SUPPORT.TXT

Renesas Tools Homepage http://www.renesas.com/en/tools

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## To use the product properly

### Precautions for Safety:

- In both this user's manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.
- The icons' graphic images and meanings are given in "Chapter 1. Precautions for Safety". Be sure to read this chapter before using the product.

# 1. Precautions for Safety

In both the user's manual and on the product itself, several icons are used to insure proper handling of this product and also to prevent injuries to you or other persons, or damage to your properties.

This chapter describes the precautions which should be taken in order to use this product safely and properly. Be sure to read this chapter before using this product.

## 1.1 Safety Symbols and Meanings

| | |
|---|---|
| ⚠ **WARNING** | If the requirements shown in the "WARNING" sentences are ignored, the equipment may cause serious personal injury or death. |
| ⚠ **CAUTION** | If the requirements shown in the "CAUTION" sentences are ignored, the equipment may malfunction. |
| **IMPORTANT** | It means important information on using this product. |

In addition to the three above, the following are also used as appropriate.

△ means WARNING or CAUTION.

Example: ⚠ **CAUTION AGAINST AN ELECTRIC SHOCK**

⃠ means PROHIBITION.

Example: **DISASSEMBLY PROHIBITED**

● means A FORCIBLE ACTION.

Example: **UNPLUG THE POWER CABLE FROM THE RECEPTACLE.**

The following page describes the symbol "CAUTION".

# ⚠CAUTION

## Cautions to Be Taken for Handling This Product:

- Do not disassemble or modify this product. Disassembling or modifying this product can cause damage.
- Use caution when handling the main unit. Be careful not to apply a mechanical shock.
- Pins of the TQPACK may be broken even by a slight shock because they are very thin (0.25 mm). Therefore, be careful when handling the TQPACK. Also be sure to connect the TQPACK and to solder the TQPACK onto a user's board in the right direction.
- Connector pins of the TQPACK and the TQSOCKET are very thin and bent easily. Therefore, handle the TQPACK and the TQSOCKET carefully as is the case with MCUs.
- When connecting the TQSOCKET to the TQPACK, after checking that there is no bend on the pins of the both connectors and they are in the right direction, gently connect the connectors vertically to the board.
- When using this product and MCU, be careful of static electricity.
- The TQSOCKET can be inserted and removed up to 100 times. When inserting and removing it more than 100 times, exchange of the TQSOCKET044SAG is necessary. Please ask Tokyo Eletech Corporation about purchasing the TQSOCKET044SAG.
- Do not apply unnecessary stress to the M37630T-RFS.
- Please contact Tokyo Eletech Corporation about dimensional drawings and specifications of the TQPACK and the TQSOCKET.
- Request of repair is not acceptable.

# 2. Things to Check When Unpacking

The M37630T-RFS consists of the following parts and the board. When unpacking, check to see if your M37630T-RFS package contains all of these items.

Contents

| | |
|---|---|
| ☐ M37630T-RFS | x1 |
| ☐ PCA4628 | x1 |
| ☐ PCA4628B | x1 |
| ☐ TQSOCKET044SAG | x1 |
| ☐ TQPACK044SA | x1 |
| ☐ M37630E4FS | x1 |
| ☐ M37630T-RFS User's Manual (this manual) | x1 |

When shipped from the factory:

- The PCA4628B is already connected to the M37630T-RFS.
- The TQSOCKET044SAF is already connected to the PCA4628B.

# 3. Introduction

The M37630T-RFS is an emulator MCU board which is used by connecting it to the M38000T-FPD, M38000TL-FPD or M38000TL2-FPD emulation pod for 8-bit microcomputers. The M37630T-RFS functions as an emulator MCU by connecting the M37630E4FS to the M37630T-RFS board.

The 44-pin QFP MCU (M37630E4FP) can also be mounted by connecting the attached PCA4628 instead of the M37630T-RFS.

Figure 3.1 shows the system configuration using the M37630T-RFS.

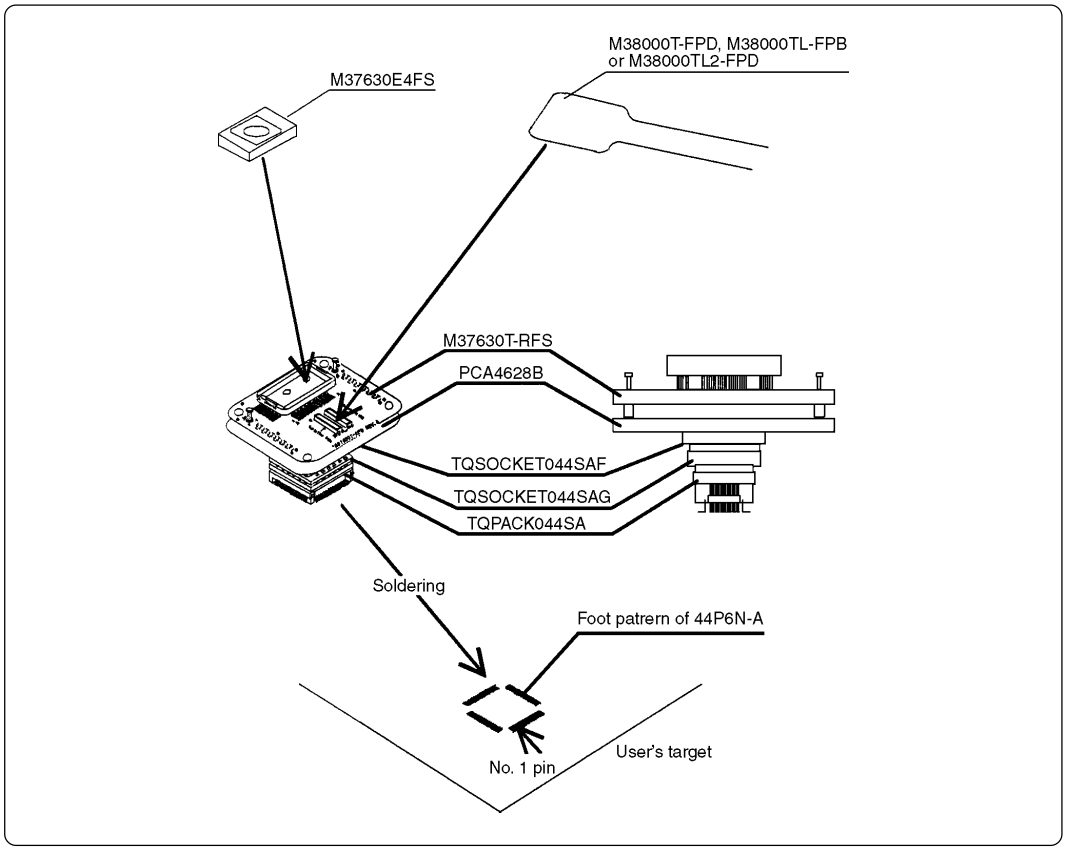


*Figure 3.1 Configuration*

# 4. Pin Assignments

Table 4.1 shows pin assignments of the M37630T-RFS.

*Table 4.1 Pin assignments of the M37630T-RFS*

| TQPACK | Signal | J3 Connector | TQPACK | Signal | J3 Connector | TQPACK | Signal | J3 Connector | TQPACK | Signal | J3 Connector |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | P31 | 19 | 12 | P47 | 43 | 23 | P03 | 27 | 34 | P17 | 9 |
| 2 | P32 | 20 | 13 | $\overline{\text{RESET}}$ | 42 | 24 | P04 | 26 | 35 | P20 | 10 |
| 3 | P33 | 21 | 14 | Vss | 38-41 | 25 | P05 | 25 | 36 | P21 | 11 |
| 4 | P34 | 22 | 15 | Xin | 37 | 26 | P06 | 1 | 37 | P22 | 12 |
| 5 | P40 | 23 | 16 | Xout | 36 | 27 | P07 | 2 | 38 | P23 | 13 |
| 6 | P41 | 24 | 17 | Vcc | 33-35 | 28 | P11 | 3 | 39 | Vss | 38-41 |
| 7 | P42 | 48 | 18 | AVss | 32 | 29 | P12 | 4 | 40 | P24 | 14 |
| 8 | P43 | 47 | 19 | Vref | 31 | 30 | P13 | 5 | 41 | P25 | 15 |
| 9 | P44 | 46 | 20 | P00 | 30 | 31 | P14 | 6 | 42 | P26 | 16 |
| 10 | P45 | 45 | 21 | P01 | 29 | 32 | P15 | 7 | 43 | P27 | 17 |
| 11 | P46 | 44 | 22 | P02 | 28 | 33 | P16 | 8 | 44 | P30 | 18 |

# 5. External Dimensions

Figure 5.1 shows external dimensions of the M37630T-RFS.

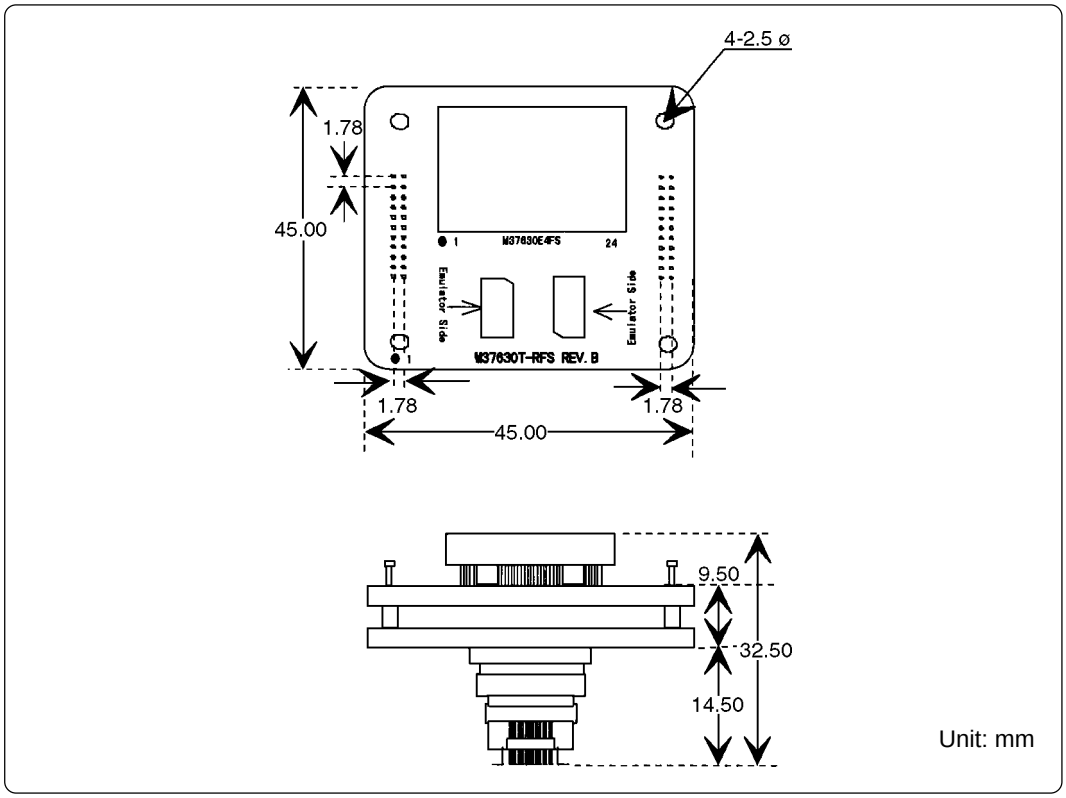


*Figure 5.1 External dimensions of the M37630T-RFS*

# 6. Setup

(1) Connect the M37630T-RFS or the PCA4628 to the PCA4628B.

(2) Connect the boards combined in the procedure (1) to the TQSOCKET044SAG.

(3) Connect the products combined in the procedure (2) to the TQPACK044SA soldered onto the user's board.

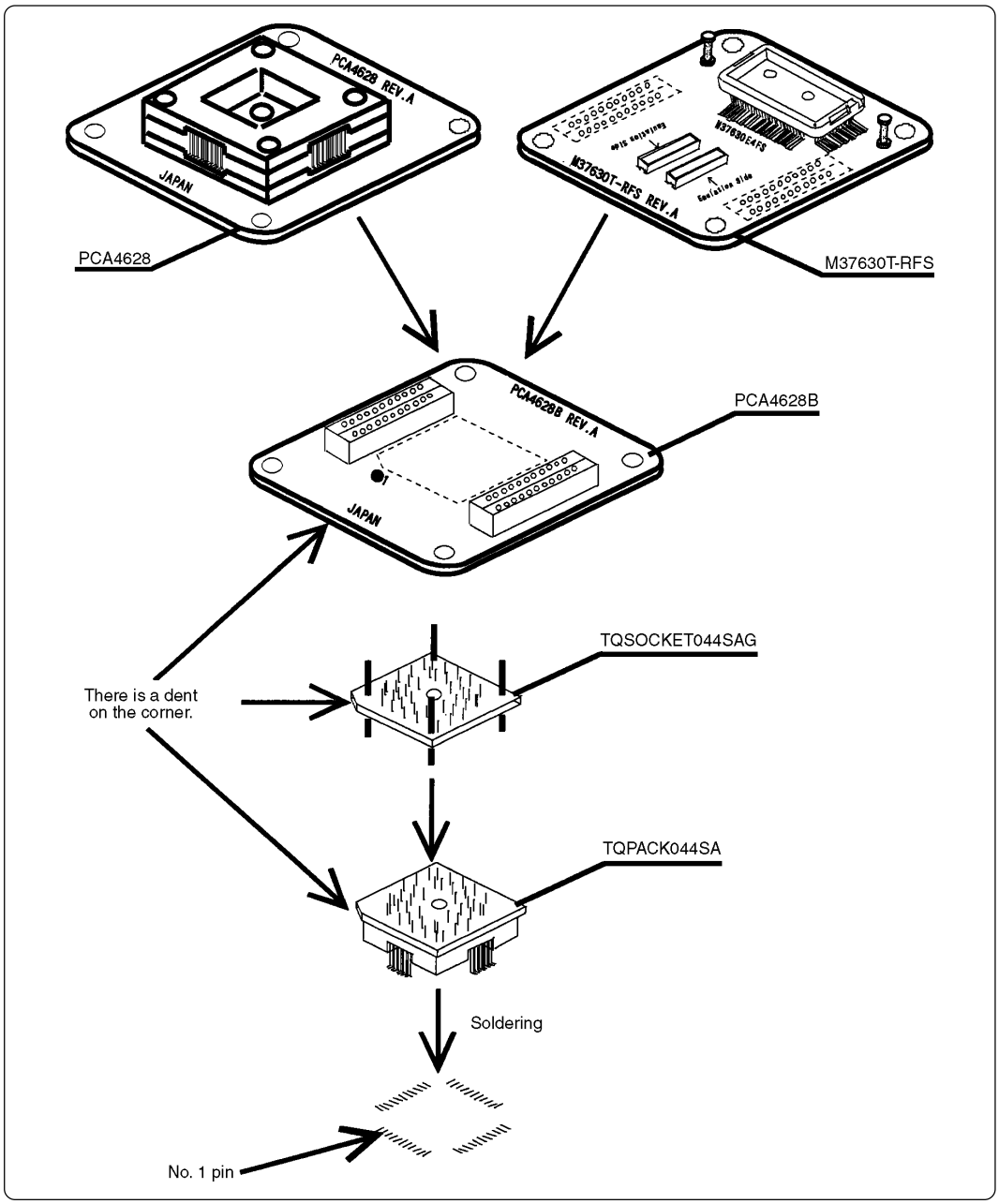


*Figure 6.1 Setting up the products*